

Remarks

The status of the claims is as follows. Claims 1-39 were originally filed and were subject to restriction. Claims 22-39 were canceled in a previous amendment. Claims 40-57 were added in a previous amendment. Claims 17-21 and 40-57 were withdrawn from consideration in the present Office Action and have been canceled herein without prejudice to Applicant's filing of divisional applications to the separately patentable subject matter thereof. Claims 58-81 were added in a previous amendment. Claims 1, 6 and 62 have been amended herein. The Office Action indicated that Claims 58-61 and 72-81 were allowed.

The Amendment

Claim 1 was amended to recite that the outlet element, the holding chamber and the supports are disposed such that gas flow through and out of the holding chamber is substantially unidirectional and substantially parallel to the supports. Support therefor is in the Specification, for example, page 6, lines 12-13.

Claim 6 was amended to recite that the outlet element, the holding chamber and the supports are disposed such that gas flow through and out of the holding chamber is substantially unidirectional and substantially parallel to the supports. Support therefor is in the Specification, for example, page 6, lines 12-13.

Claim 62 was amended to recite that the outlet element, the holding chamber and the supports are disposed such that gas flow through and out of the holding chamber is substantially unidirectional and substantially parallel to the supports. Support therefor is in the Specification, for example, page 6, lines 12-15.

Rejection under 35 U.S.C. §102

Claims 1, 3-6, 8, 15 and 16 were rejected under 35 U.S.C. 102(b) as being anticipated by Takagi (U.S. Patent No. 6,248,672).

The disclosure of Takagi was summarized in Applicant's previous paper. In order to maintain a rejection under 35 U.S.C. §102(b), a *prima facie* case of anticipation must be established first. An invention is anticipated if each and every limitation of the claimed invention is disclosed in a single prior art reference. *In re Paulsen*, 30 F.3d 1475, 1478, 31 U.S.P.Q.2d 1671, 1673 (Fed. Cir. 1994).

In the present situation, Takagi does not disclose each and every element of the claimed invention. Takagi fails to disclose or suggest that the outlet element, the

holding chamber and the supports are disposed such that gas flow through and out of the holding chamber is substantially unidirectional and substantially parallel to the supports. In the embodiment of Fig. 1 of Takagi, wafer 8 is disposed perpendicular to the direction of flow of reaction gas 2 and reaction gas 2 does not flow parallel to the wafer as a result of the design of this embodiment of Takagi. The fact that gas does not flow parallel to wafer 8 is emphasized in column 9, lines 14-17, where Takagi states that the wafer 8 is placed on the separator 21, which is in the form of a round disc. Since the entire under side of wafer 8, continues the patentee, is supported by the separator 21, no reaction occurs on the under side. It is submitted that flow of gas that is perpendicular to the wafer would not be considered by one skilled in the art to fall within the phrase "substantially parallel."

In the embodiment of Fig. 11 of Takagi, as a result of the design of his apparatus, the flow of reaction gas 1e is not substantially unidirectional through and out of the reaction tube 1. Reaction gas 1e impinges on a wall of the reaction tube that is depicted as perpendicular to the gas flow at that point. Accordingly, gas 1e changes direction at what appears to be about a 90-degree angle to exit the reaction tube through exhausting conduit 35. One skilled in the art would not consider flow of gas that makes about a 90-degree turn to fall within the phrase "substantially unidirectional."

In the embodiment of Fig. 13 of Takagi, reaction gas 37 does not flow through and out of the reaction tube 1 in a substantially unidirectional manner and substantially parallel to the wafers 8 because of the design of Takagi's apparatus. As discussed above, separator 21 does not allow gas to flow through. Thus, reaction gas 37 does not flow through separator 21 and must change direction in order to exit the reaction tube because of the design of this embodiment of Takagi. As indicated above, flow of gas that is perpendicular to the wafer would not be considered by one skilled in the art to fall within the phrase "substantially parallel."

As indicated in the present Specification, embodiments of the present invention are designed to provide a storage chamber in which the internal environmental conditions within the storage chamber are controlled to prevent contamination of the surfaces of supports and destruction of chemical compounds on the surfaces of the supports.

The Office Action asserts that intended use of a claimed invention must result in a structural difference between the claimed invention and the prior art in order to

distinguish patentably the claimed invention from the prior art. As mentioned above, because the present invention is directed to an apparatus for storing supports having chemical compounds on their surface, the presently claimed apparatus are structurally different than those of the reference and the structural differences are pointed out above. The prior art structure is not capable of performing the intended use because the prior art structure does not have the structural features of the presently claimed apparatus where the holding chamber and the supports are disposed such that gas flow through and out of the holding chamber is substantially unidirectional and substantially parallel to the supports. Takagi utilizes reaction gases to carry out chemical reactions on the surface of wafers. Accordingly, turbulent gas flow conditions are desirable. On the other hand, the present invention is directed to protecting compounds on the surface of supports during storage to avoid contamination and destruction of compounds on such surfaces. Applicant has discovered that an apparatus having structural features that provide substantially unidirectional gas flow through and out of a holding chamber as claimed allows one to achieve the storage objective. Such gas flow is realized by structural design.

Rejection under 35 U.S.C. §103

Claims 7, 62, 63, 70 and 71 were rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi in view of Yamagi, et al. (U.S. Patent No. 5,484,484) (Yamagi). Applicant submits that Claim 7 is patentable over Takagi because of its dependency from Claim 6, which is patentable over Takagi as explained above. Takagi is concerned with reaction chambers and not storage chambers. Takagi utilizes reaction gases to carry out chemical reactions on the surface of wafers. There is no concern in Takagi for storage of supports with biopolymers on their surfaces. Takagi's focus is to carry out reactions on the surface of his wafers. There is no teaching in Takagi relating to protecting compounds on the surface of supports during storage to avoid contamination and destruction of compounds on such surfaces. Thus, one skilled in the art would not look to Takagi for information as to how to construct an apparatus that would achieve storage of supports comprising chemical compounds such as, for example, biopolymers, where the goal is to avoid chemical reaction or other degrading processes on the surface during such storage. Furthermore, even if for the sake of argument one skilled in the art were to use a valve in Takagi's apparatus as taught by Yamagi, one still would not be in

possession of the invention of Claim 7. As discussed above, Claim 6, from which Claim 7 depends, is patentable over Takagi.

Claim 62 is patentable over Takagi in view of Yamagi because Takagi fails to disclose or suggest that the outlet element, the holding chamber and the supports are disposed such that gas flow through and out of the holding chamber is substantially unidirectional and substantially parallel to the supports. Yamagi's teaching of a valve does not cure this deficiency even if for the sake of argument one were to combine the teachings of the two references. Claims 63, 70 and 71 depend from Claim 62 and, therefore, are patentable over the references based on that dependency.

Allowable Subject Matter

Claims 2, 9-14 and 64-69 were objected to as being dependent upon a rejected base claim. The Office Action indicated that the claims would be allowable if rewritten in independent form. Applicant submits that Claims 1 and 62, from which Claims 2 and 9-14 on the one hand and Claims 64-69 on the other hand respectively depend, are patentable over the art as discussed above.

Conclusion

Claims 1, 6 and 62 and claims dependent therefrom are patentable over the art of record as discussed above. Claims 58-61 and 72-81 have been allowed. Allowance of the above-identified patent application, it is submitted, is in order.

Respectfully submitted,



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